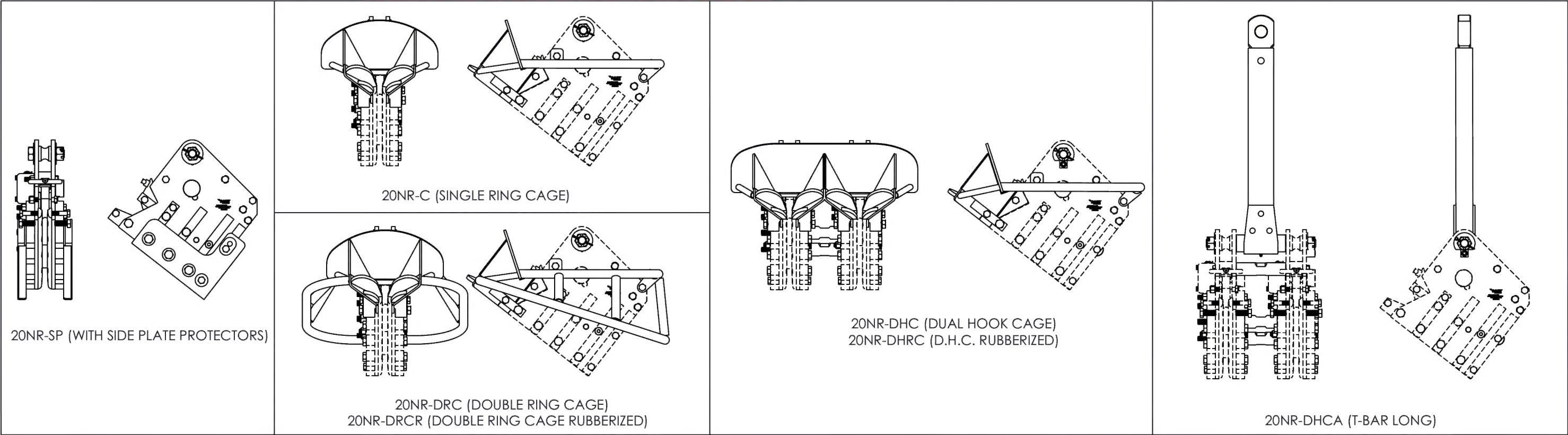


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SEE ATTACHED DEVIATION

REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		REMOVED 20NR FROM ASSY'S 20NR-C, 20NR-DRC, 20NR-DRCR, 20NR-DHC, 20NR-DHRC, & 20NR-DHCA. REMOVED 20NR-83 FROM ASS'S 20NR-DHC, & 20NR-DHRC.	7/22/2014	JAG	EB
2	15-0239	20NR-75 REPLACED W/ AN8-34A.	9/25/2015	DPD	JAG



ASSY QTY	ASSY QTY	B/O	Part #	20NR-DHCA /QTY.	20NR-DHRC /QTY.	20NR-DHC /QTY.	20NR-DRCR /QTY.	20NR-DRC /QTY.	20NR-C /QTY.	20NR-SP /QTY.	Description	Material	B/O INFORMATION OR SPECIFICATIONS	PG.
			20NR							1	20NR NUBBINS RECEIVER			2
			20NR-78							1	RH PROTECTOR PLATE ASSY			2
			20NR-80							1	LH PROTECTOR PLATE ASSY			2
			20NR-83A	1							T-BAR LONG			8
			20NR-84	1	1	1					SPACER DUAL CAGE 6, 1/2" HOLE	1045		6,7,8
			20NR-84A	1	1	1					SPACER DUAL CAGE 4, 1/2" HOLE	1045		6,7,8
			20NR-84B	1	1	1					SPACER DUAL CAGE 4, 5/8" HOLE	1045		6,7,8
			20NR-85	1	1	1					DRAW BAR FOR T-BAR	4340		6,7,8
			20NR-86			1					DUAL HOOK CAGE			6
			20NR-86R		1						DUAL HOOK RUBBERIZED CAGE			7
			20NR-88					1			DOUBLE RING CAGE			4
			20NR-88R				1				DOUBLE RING CAGE RUBBERIZED			5
			20NR-93	1	1	1					STOP BLOCK	A36		6,7,8
			20NR-119						1		20NR SINGLE RING CAGE			3
		B/O	20NR-07	2	2	2	1	1	1	1	LIFTING BOLT NUT	STEEL	1"-8, GRADE 5 (MCMaster-CARR #97190A040)	2-8
			20NR-07A				1	1	1	1	LIFTING BOLT	STEEL	1"-8 X 5-1/2, GRADE 8 (MCMaster-CARR #91257A967) MODIFIED	2,3,4,5
		B/O	20NR-12	12	12	12	6	6	6		RAIL BOLTS	STEEL	5/8-18 X 1-3/4 MCMaster-CARR #92620A310	3-8
		B/O	20NR-45	2	2	2	3	3	3	3	NYLOCK NUT	STEEL	1/2-20 (MCMaster-CARR #97135A255)	2-8
		B/O	20NR-46				1	1	1	1	5/8 NUT	STEEL	5/8-18 (MCMaster-CARR #97135A275)	2,3,4,5
		B/O	20NR-48	4	4	4	2	2	2		RAIL BOLTS	STEEL	1/2-20 X 1-3/4 MCMaster-CARR #92620A747	3-8
		B/O	20NR-85B	1	1	1	2	2	2	2	LIFTING BOLT WASHER	STEEL	Ø1-1/16 I.D. (MCMaster-CARR #90108A038)	2-8
			20NR-85C	1	1	1					LIFTING WASHER WITH FLAT	STEEL	Ø1-1/16 I.D. MCMaster-CARR #90108A038 (MODIFIED)	6,7,8
		B/O	20NR-89	2	2	2	1	1	1	1	COTTER PIN	STEEL	Ø1/8 X 2 (MCMaster-CARR #98338A200)	2-8
		B/O	20NR-94	1	1	1					3/8 WEDGE LOCK WASHER SET	STEEL	Ø3/8 MCMaster-CARR #91074A131	6,7,8
		B/O	20NR-95	1	1	1					3/8 FINE THREAD BOLT	STEEL	3/8-24 X 1 MCMaster-CARR #90128A364	6,7,8
		B/O	20NR-105							2	SIDE PLATE BOLTS	STEEL	1/2-20 X 2 MCMaster-CARR #91257A748	2
		B/O	20NR-116	2	2	2					DOWEL PIN	STEEL	Ø1/8 X 5/8 MCMaster-CARR #98381A472	6,7,8
		B/O	AN8-34A	4	4	4	2	2	2	2	CAGE BOLT	STEEL	1/2-20 X 3.594	2-8
		B/O	20NR-79							6	SIDE PLATE BOLT	STEEL	5/8-18 X 2 MCMaster-CARR #92620A825	

TITLE
20NR CAGE ASSEMBLIES

DWG NO.
20NR-CAGES

REV
2

MAT'L
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
.XXX ± .005 FRACTIONS ± 1/8
.XX ± .01 ANGLES ± 5°
.X ± .1
1. BREAK ALL SHARP EDGES .015 x 45°
OR .015R
2. DIMENSIONAL LIMITS APPLY AFTER
PLATING

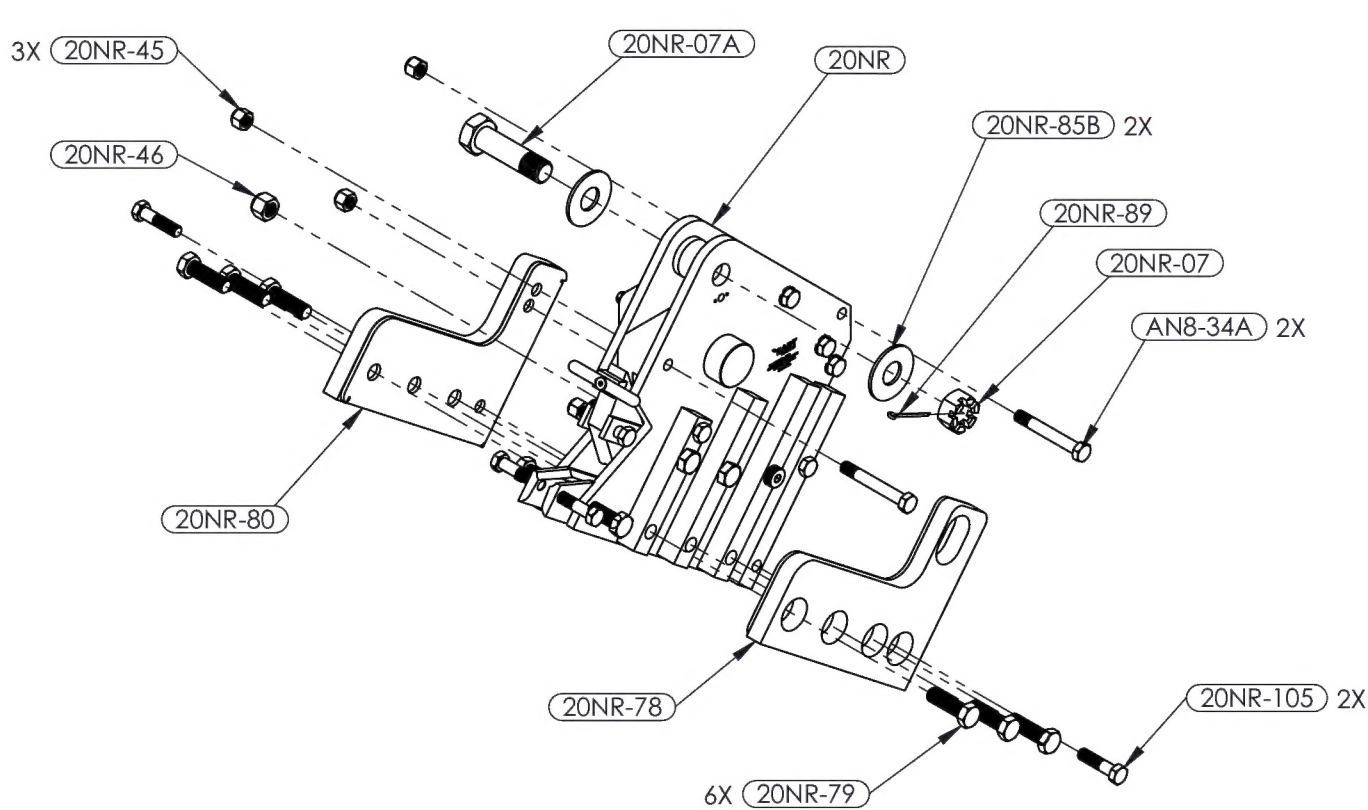
DRAWN BY: SMITH
APPROVED
TREAT
FINISH
SPEC
USED ON MODEL

SCALE 1:12
DATE 8/16/2013
SHEET 1 OF 8

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REVISIONS				
REV	ECR	DESCRIPTION	DATE	INITIAL
				APPROVED

SEE ATTACHED DEVIATION



20NR-SP

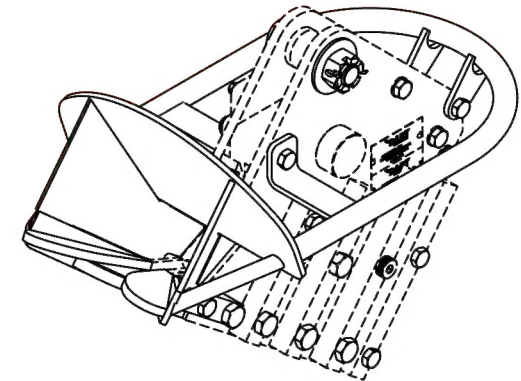
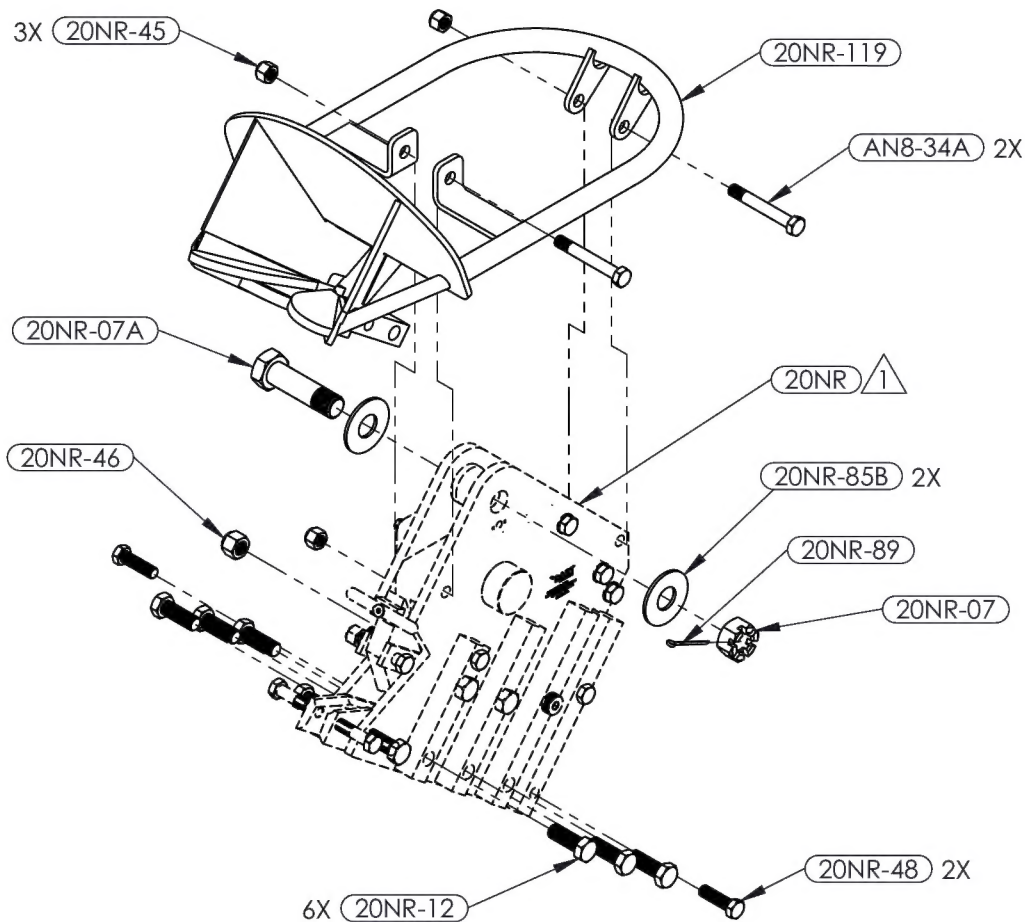
WITH SIDE PLATE PROTECTORS

DART AEROSPACE	
TITLE 20NR CAGE ASSEMBLIES	
DWG NO. 20NR-CAGES	REV 2
MAT'L	DRAWN BY: SMITH
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVED <i>D Weil</i>
.XXX ± .005	HEAT
.XX ± .01	TREAT
.X ± .1	FINISH
ANGLES ± 5°	SPEC
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	USED ON MODEL
2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE 1:8	DATE 8/16/2013
SHEET 2 OF 8	

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		20NR CHANGED TO A REFERENCE.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



NOTE:

△ 1 20NR FOR REFERENCE ONLY.

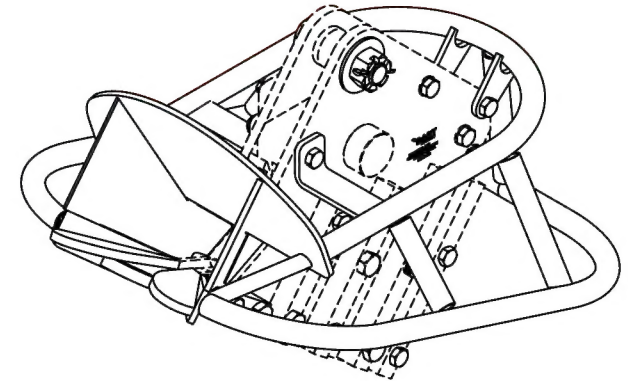
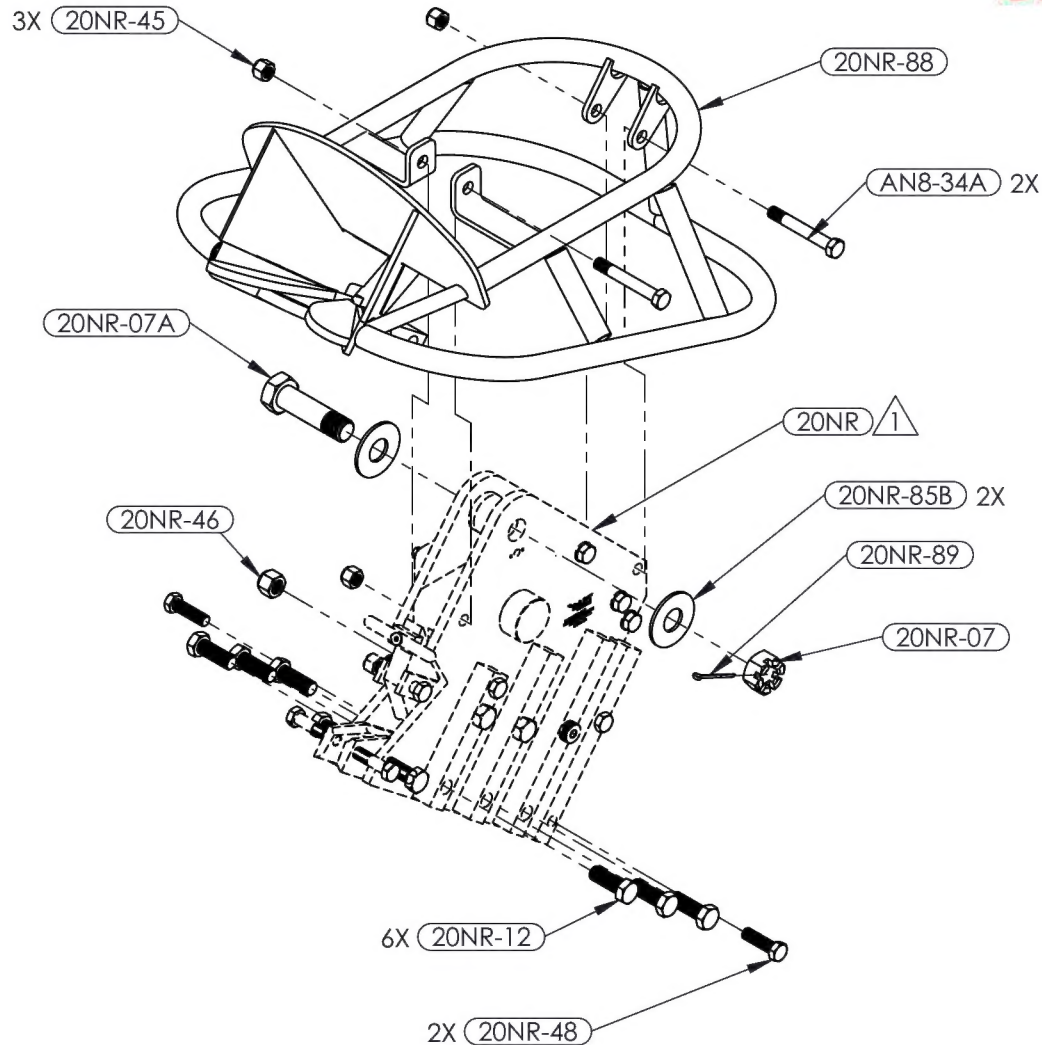
20NR-C
SINGLE RING CAGE

DART AEROSPACE	
TITLE 20NR CAGE ASSEMBLIES	
DWG NO. 20NR-CAGES	REV 2
MAT'L	DRAWN BY: SMITH
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVED <i>D Weil</i>
.XXX ± .005	HEAT TREAT
.XX ± .01	FINISH
.X ± .1	SPEC
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	USED ON MODEL
2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE 1:8	DATE 8/16/2013
SHEET 3 OF 8	

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		20NR CHANGED TO A REFERENCE, REMOVED SIDE PROTECTORS.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



NOTE:

1 20NR FOR REFERENCE ONLY.

DART AEROSPACE	
TITLE 20NR CAGE ASSEMBLIES	
DWG NO. 20NR-CAGES	REV 2
MAT'L UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 .XX ± .01 .X ± .1	DRAWN BY: SMITH APPROVED: <i>D Weil</i> HEAT TREAT FINISH SPEC
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE 1:8	DATE 8/16/2013
SHEET 4 OF 8	

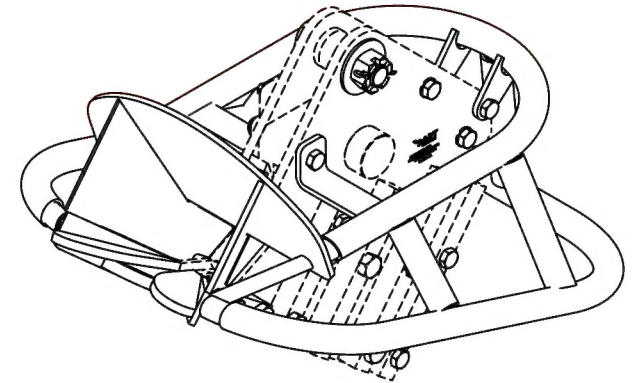
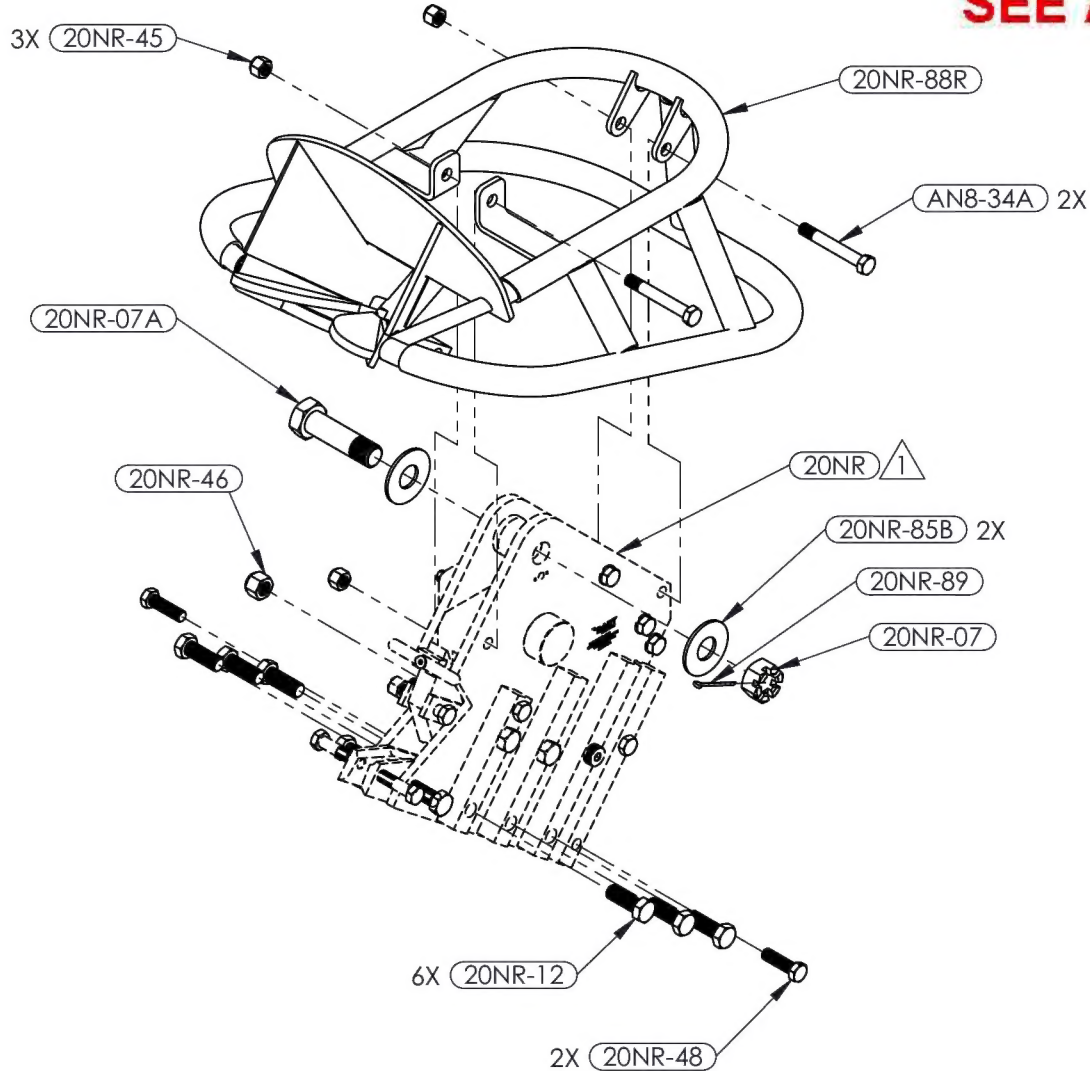
20NR-DRC

DOUBLE RING CAGE

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		20NR CHANGED TO A REFERENCE, REMOVED SIDE PROTECTORS.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



NOTE:

1 20NR FOR REFERENCE ONLY.

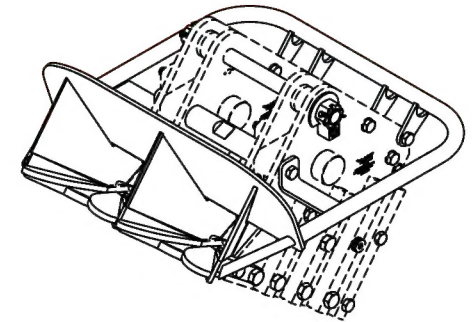
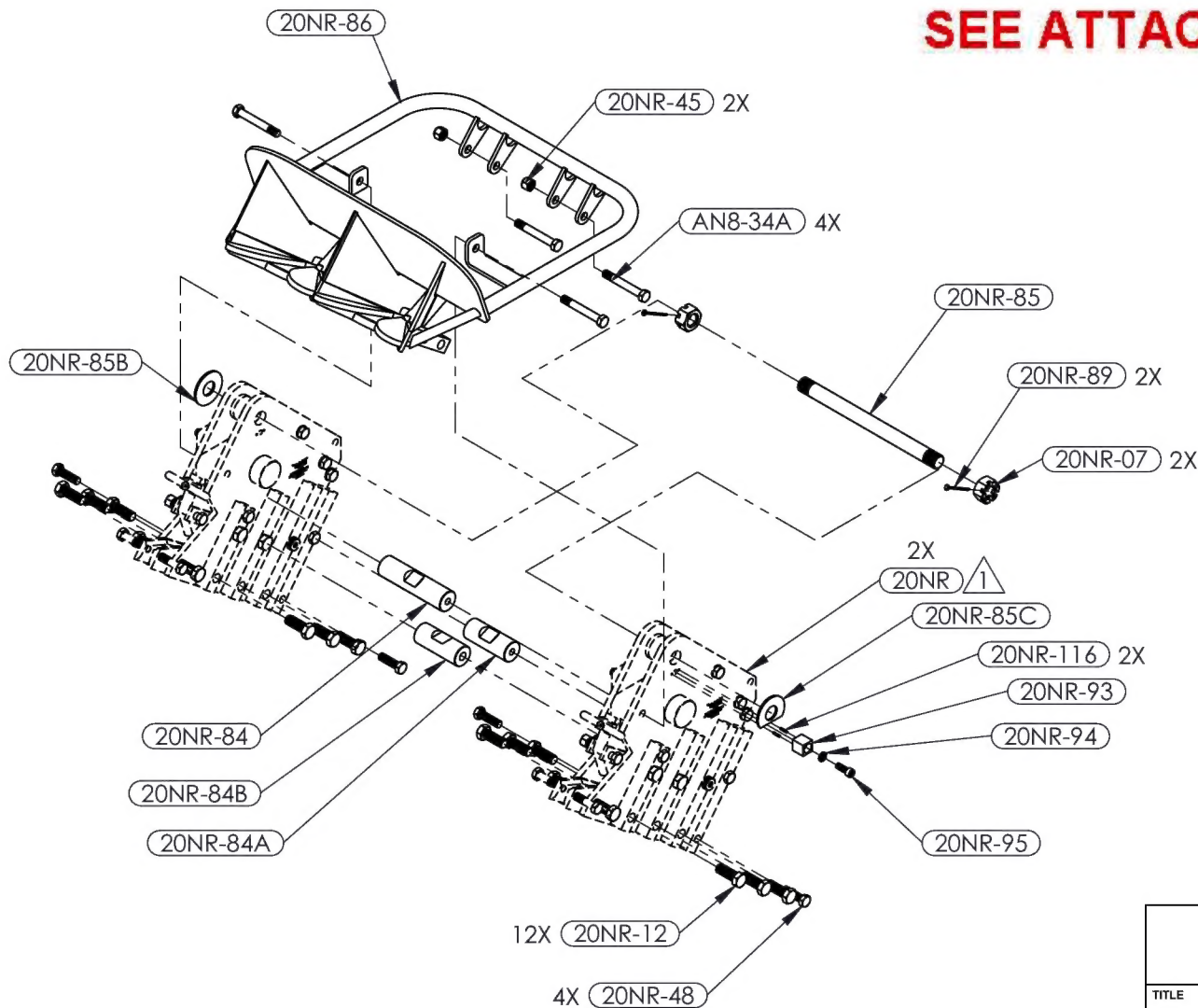
DART AEROSPACE	
TITLE 20NR CAGE ASSEMBLIES	
DWG NO. 20NR-CAGES	REV 2
MAT'L	DRAWN BY: SMITH
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVED <i>D Weil</i>
.XXX ± .005	HEAT
.XX ± .01	TREAT
.X ± .1	FINISH
FRACTIONS ± 1/8	SPEC
ANGLES ± 5°	USED ON MODEL
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	
2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE 1:8	DATE 8/16/2013
SHEET 5 OF 8	

DOUBLE RING CAGE RUBBERIZED

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REVISIONS			DATE	INITIAL	APPROVED
REV	ECR	DESCRIPTION			
1		20NR CHANGED TO A REFERENCE, REMOVED T-BAR & SIDE PROTECTORS.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



NOTE:

1 20NR FOR REFERENCE ONLY.



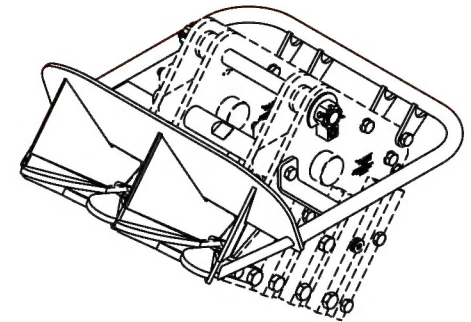
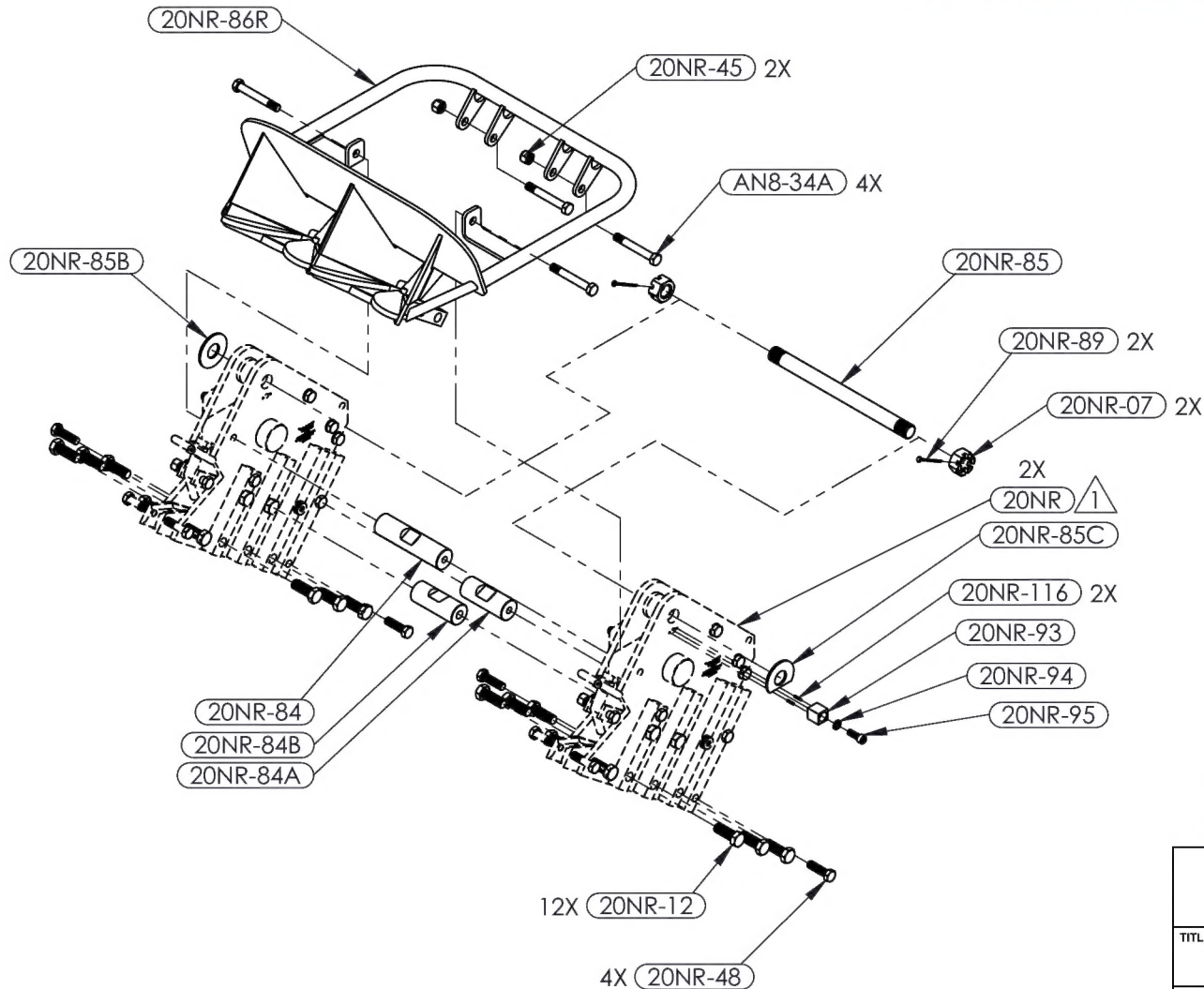
TITLE		
20NR CAGE ASSEMBLIES		
DWG NO.		REV
20NR-CAGES		2
MAT'L	DRAWN BY: SMITH	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1	APPROVED <i>D Weil</i>	
	HEAT TREAT	
	FINISH	
	SPEC	
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R		
2. DIMENSIONAL LIMITS APPLY AFTER PLATING		
SCALE	1:12	DATE 8/16/2013
		SHEET 6 OF 8

20NR-DHC
DUAL HOOK CAGE

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		20NR CHANGED TO A REFERENCE, REMOVED T-BAR & SIDE PROTECTORS.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



NOTE:

1 20NR FOR REFERENCE ONLY.



TITLE		20NR CAGE ASSEMBLIES	
DWG NO.	20NR-CAGES		REV 2
MAT'L	DRAWN BY: SMITH		APPROVED <i>D Weil</i>
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES		HEAT TREAT	
.XXX ± .005		FINISH	
.XX ± .01		SPEC	
.X ± .1		USED ON MODEL	
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R			
2. DIMENSIONAL LIMITS APPLY AFTER PLATING			
SCALE	1:12	DATE	8/16/2013
		SHEET 7 OF 8	

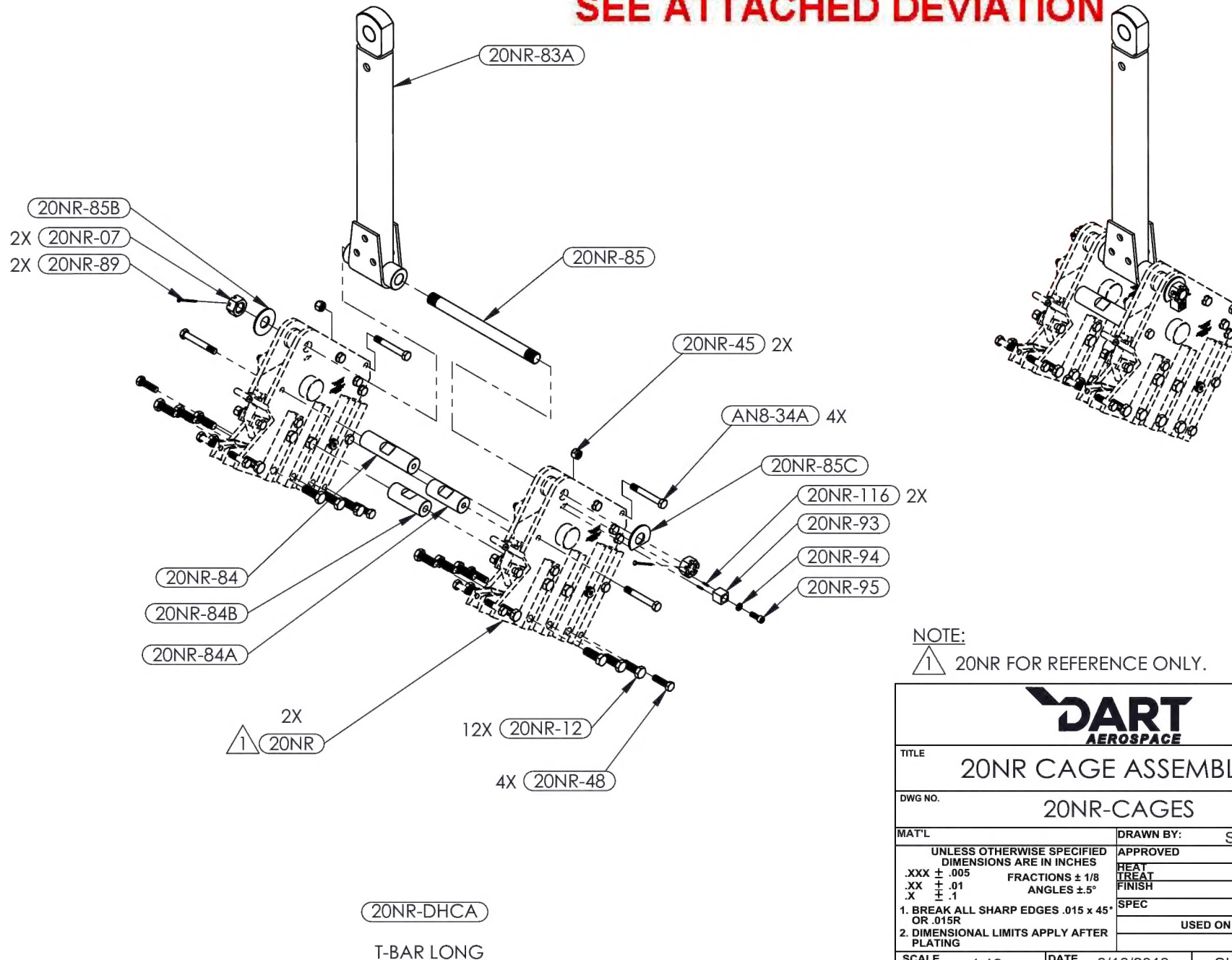
20NR-DHRC

D.H.C. RUBBERIZED

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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED
1		20NR CHANGED TO A REFERENCE.	7/22/2014	JAG	EB

SEE ATTACHED DEVIATION



DART AEROSPACE	
TITLE 20NR CAGE ASSEMBLIES	
DWG NO. 20NR-CAGES	REV 2
MAT'L UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES .XXX ± .005 FRACTIONS ± 1/8 .XX ± .01 ANGLES ± 5° .X ± .1	DRAWN BY: SMITH APPROVED: <i>D Weil</i> HEAT TREAT FINISH SPEC
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LIMITS APPLY AFTER PLATING	
SCALE 1:12	DATE 8/16/2013
SHEET 8 OF 8	

Entered: _____ Date: _____



WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

NCR No. _____

Route update only ☐

Job: _____ Part No. <u>20NR-CAGES</u> <u>REV 2</u>	DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/>	DEPARTMENT/PROCESS <table> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Cross tube <input type="checkbox"/></td> <td>Eng. (Non-AW) <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Supplier Quality <input type="checkbox"/></td> </tr> </table>				Skid-tube <input type="checkbox"/>	Cross tube <input type="checkbox"/>	Eng. (Non-AW) <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Supplier Quality <input type="checkbox"/>
Skid-tube <input type="checkbox"/>	Cross tube <input type="checkbox"/>	Eng. (Non-AW) <input type="checkbox"/>	Engineering <input type="checkbox"/>														
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Water Jet <input type="checkbox"/>														
Large Fab <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Supplier Quality <input type="checkbox"/>														

Date : 2019-05-31

Sequence #: _____

QTY Affected : _____

MRB (QSI042)

WHP

Description Work Order Deviation	Disposition	
-ITEM 20NR-12 McMASTER #92620A310 REPLACE BY McMASTER #92620A825 -ITEM 20NR-48 McMASTER #92620A747 REPLACE BY McMASTER #92620A748 -THE BOLTS MUST BE SHIMMED FLUSH WITH THE RAILS USING NAS1149FXXXX P WASHERS AS REQUIRED	THIS DEVIATION IS ACCEPTABLE TO USE AS IS FIT, FORM AND FUNCTION WILL BE AS ORIGINALLY INTENDED	Completed By Lead hand / Supervisor QC / QA Coordinator

Root Cause	FAULT CATEGORY			
Operator <input type="checkbox"/> Manufacturing Process <input type="checkbox"/> Equip/Tooling <input type="checkbox"/> Handling/Preservation <input type="checkbox"/> Material <input type="checkbox"/> Product Improvement <input type="checkbox"/> Process Improvement <input type="checkbox"/> Human Factors <input type="checkbox"/>	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Bending <input type="checkbox"/> Crushing <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave/Twist <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Mislabeled	<input type="checkbox"/> Contamination <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Incomplete/Unclear Instructions <input type="checkbox"/> Drill Holes <input type="checkbox"/> Fit/Function	<input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain Direction <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Off-set/Set-up	<input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Outside Tolerance <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Misread
Other/Details: _____				